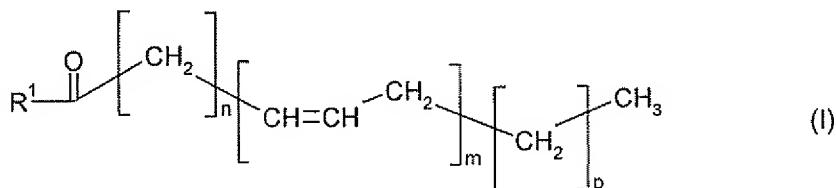


### AMENDMENTS TO THE CLAIMS

#### Listing of Claims:

1. (Currently amended) A process for the production of compounds of the following general formula I

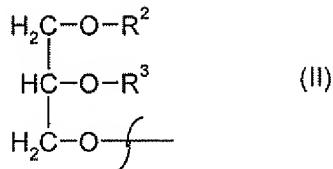


in a transgenic organism's oil producing plant with a content of at least 1 % by weight of said compounds [[-]] referred in reference to the total lipid content of said organism which plant, wherein the process comprises the following steps:

- a) introduction of introducing at least one nucleic acid sequence encoding a Δ-9-elongase into an oil producing plant, in a transgenic organism, which encodes a Δ-9-elongase, and
- b) introduction of introducing at least one second nucleic acid sequence which encodes encoding a Δ-8-desaturase, and
- c) if necessary introduction of introducing at least [[a]] one third nucleic acid sequence encoding, which encodes a Δ-5-desaturase, and
- d) cultivating and harvesting of said organism oil producing plant; and

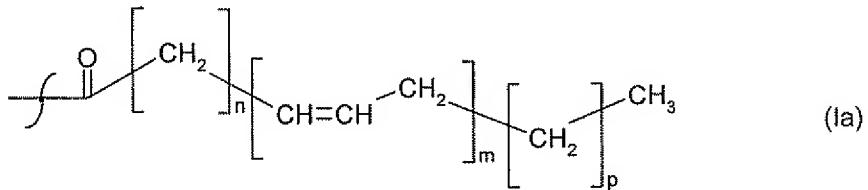
wherein the variables and substituents R<sup>1</sup>, R<sup>2</sup>, and R<sup>3</sup> in formula I have the following meanings:

R<sup>1</sup> = hydroxyl-, Coenzyme A-(Thioester), phosphatidylcholine-, phosphatidyl-ethanolamine-, phosphatidylglycerol-, diphosphatidylglycerol-, phosphatidylserine-, phosphatidylinositol-, sphingolipid-, glycosphingolipid- or a residue of the general formula II:



$\text{R}^2$  = hydrogen-, phosphatidylcholine-, phosphatidylethanolamine-, phosphatidylglycerol-, diphosphatidylglycerol-, phosphatidylserine-, phosphatidylinositol-, shingolipid-, glycosphingolipid-, glycosphingolipid- or saturated or unsaturated  $\text{C}_2-\text{C}_{24}$ -alkylcarbonyl-,

$\text{R}^3$  = hydrogen-, saturated or unsaturated  $\text{C}_2-\text{C}_{24}$ -alkylcarbonyl-, or  $\text{R}^2$  and  $\text{R}^3$  independent of each other a residue of the formula Ia:



$n = 3, 4$  or  $6, m = 3, 4$  or  $5$  and  $p = 0$  or  $3$ .

2. (Currently amended) The process as claimed in claim 1, wherein the nucleic acid sequence[[s]] which encode polypeptides with encoding  $\Delta$ -8-desaturase,  $\Delta$ -9-elongase or  $\Delta$ -5-desaturase are selected from the group consisting of

- a) [[a]] the nucleic acid sequence depicted in SEQ ID NO: 1, SEQ ID NO: 3, or SEQ ID NO: 5, SEQ ID NO: 7 or SEQ ID NO: 9 and
- b) a nucleic acid sequence which is derived from the sequence depicted in SEQ ID NO: 1, SEQ ID NO: 3, SEQ ID NO: 5, SEQ ID NO: 7 or SEQ ID NO: 9 according to the degeneracy of the genetic code, encoding the amino acid sequence depicted in SEQ ID NO: 2, SEQ ID NO: 4, or SEQ ID NO: 6.
- c) derivatives of the sequence depicted in SEQ ID NO: 1, SEQ ID NO: 3, SEQ ID NO: 5, SEQ ID NO: 7 or SEQ ID NO: 9 which encodes polypeptides having at least 50% homology to the sequence encoding amino acid sequences depicted in SEQ ID NO: 2, SEQ ID NO: 4, SEQ ID NO: 6, SEQ ID NO: 8 or SEQ ID NO: 10 and which sequences function as a  $\Delta$ -8-desaturase,  $\Delta$ -9-elongase or  $\Delta$ -5-desaturase.

3. (Currently amended) The process as claimed in of claim 1, wherein the substituents R<sup>2</sup> and R<sup>3</sup> are independent of each other saturated or unsaturated C<sub>10</sub>–C<sub>22</sub>–alkylcarbonyl-.
4. (Currently amended) The process as claimed in of claim 1, wherein the substituents R<sup>2</sup> and R<sup>3</sup> are independent of each other saturated or unsaturated C<sub>16</sub>–, C<sub>18</sub>–, C<sub>20</sub>– or C<sub>22</sub>–alkylcarbonyl-.
5. (Currently amended) The process as claimed in of claim 1, wherein the substituents R<sup>2</sup> and R<sup>3</sup> are independent of each other unsaturated C<sub>16</sub>–, C<sub>18</sub>–, C<sub>20</sub>– or C<sub>22</sub>–alkylcarbonyl- with at least three double bonds.
6. (Cancelled)
7. (Currently amended) The process as claimed in of claim 1, wherein the transgenic oil producing plant is selected from the group consisting of rapeseed, poppy, mustard, hemp, castor bean, sesame, olive, calendula, punica, hazel nut, almond, macadamia, avocado, pumpkin, walnut, laurel, pistachio, primrose, canola, peanut, linseed, soybean, safflower, sunflower and borage.
8. (Currently amended) The process as claimed in of claim 1, wherein the compounds of the general formula I are isolated in the form of their oils, lipids of free fatty acids.
9. (Currently amended) The process as claimed in of claim 1, wherein the compounds of the general formula I are isolated in a concentration of at least 5 % by weight referred in reference to the total lipid content.
10. (Withdrawn) An isolated nucleic acid sequence comprising a nucleotide sequence which encodes a Δ-8-desaturase selected from the group consisting of
  - a) a nucleic acid sequence depicted in SEQ ID NO: 1,
  - b) a nucleic acid sequence which is derived from the sequence depicted in SEQ ID NO: 1 according to the degeneracy of the genetic code and which sequences function as a Δ-8-desaturase.
11. (Withdrawn) An isolated nucleic acid sequence comprising a nucleotide sequence which encodes a Δ-5-desaturase selected from the group consisting of
  - a) a nucleic acid sequence depicted in SEQ ID NO: 5,

- b) a nucleic acid sequence which is derived from the sequence depicted in SEQ ID NO: 5 according to the degeneracy of the genetic code,
- c) derivatives of the sequence depicted in SEQ ID NO: 5 which encodes polypeptides having at least 50 % homology to the sequence encoding amino acid sequences depicted in SEQ ID NO: 6 and which sequences function as a Δ-5-desaturase.

12. (Withdrawn) An amino-acid sequence encoded by an isolated nucleic acid sequence as claimed in claims 10.

13. (Withdrawn) A gene construct comprising an isolated nucleic acid having the sequence SEQ ID NO: 1 as claimed in claim 10, where the nucleic acid is functionally linked to one or more regulatory signals.

14. (Withdrawn) A gene construct as claimed in claim 13, whose gene expression is increased by the regulatory signals.

15. (Withdrawn) A vector comprising a nucleic acid as claimed in claim 10.

16. (Withdrawn) An organism comprising at least one nucleic acid as claimed in claim 10.

17. (Withdrawn) The organism as claimed in claim 16, wherein the organism is a microorganism, a non-human animal or a plant.

18. (Withdrawn) The organism as claimed in claim 16, wherein the organism is a transgenic plant.

19. (Withdrawn) An amino-acid sequence encoded by an isolated nucleic acid sequence as claimed in claim 11.

20. (Withdrawn) A gene construct comprising an isolated nucleic acid having the sequence SEQ ID NO: 5 as claimed in claim 11, where the nucleic acid is functionally linked to one or more regulatory signals.

21. (Withdrawn) A gene construct as claimed in claim 20, whose gene expression is increased by the regulatory signals.

22. (Withdrawn) A vector comprising a nucleic acid as claimed in claim 11.

23. (Withdrawn) An organism comprising at least one nucleic acid as claimed in claim 11.

24. (Withdrawn) The organism as claimed in claim 23, wherein the organism is a microorganism, a non-human animal or a plant.
25. (Withdrawn) The organism as claimed in claim 23, wherein the organism is a transgenic plant.